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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/577,671

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Hui Li

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EXAMINER

WANG-HURST, KATHY W

ART UNIT

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2617

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/577,671	Applicant(s) LI, HUI	
	Examiner KATHY WANG-HURST	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

Response to Arguments

1. Applicant's arguments with respect to claims 19-38 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 19-38 rejected under 35 U.S.C. 103(a) as being unpatentable over Terry (US 2004/0196871) in view of Franci et al. (US 2003/0060204).

Regarding claim 19, Terry discloses a method for signaling relating to an intended data transmission from a first radio station to a second radio station in an ad-hoc mode of a radio communication system ([0005][0025][0064] sending intended data between stations in an ad-hoc network), comprising: dividing a frequency band into a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station uses one or more second sub-bands ([0014][0024]); and sending a notification from the first radio station relating to the intended data transmission to the second radio station, the notification being sent only on one or more sub-bands selected from the group consisting of the one or more first sub-bands and

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the one or more second sub-bands ([0020][0024] sending control messages such as request-to-send over two sub-channels).

Terry discloses the radio stations use sub-bands to transmit but fails to disclose radio stations are assigned to operate on certain channels. Francl teaches radio stations are assigned sub-bands (Fig. 3 and [0014][0017]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the invention of Terry, to assign each station channels that the station is allowed to transmit data, as taught by Francl, thus allowing a more organized and efficient way of allocating channels.

Regarding claim 25, Terry discloses a method for signaling relating to an intended data transmission from a first radio station to a second radio station in an ad-hoc mode of a radio communication system, comprising:
dividing a frequency band into a plurality of sub-bands for communication between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station uses one or more second sub-bands ([0014][0024]); receiving a notification at the second radio station from the first radio station relating to the intended data transmission from the first radio station to the second radio station ([0020][0055] exchanging control messages between two stations); and after receiving the notification, sending an acknowledgement from the second radio station to the first radio station to acknowledge the intended data transmission ([0015][0017][0021]), the acknowledgement being sent only on one or more sub-bands

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selected from the group consisting of one or more first sub-bands and one or more second sub-bands([0021][0024]).

Terry discloses the radio stations use sub-bands to transmit but fails to disclose radio stations are assigned to operate on certain channels. Franci teaches radio stations are assigned sub-bands (Fig. 3 and [0014][0017]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the invention of Terry, to assign each station channels that the station is allowed to transmit data, as taught by Franci, thus allowing a more organized and efficient way of allocating channels.

Regarding claim 29, Terry discloses a method for signaling relating to an intended data transmission from a first radio station to a second radio station in an ad-hoc mode of a radio communication system, comprising: dividing a frequency band into a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station uses one or more second sub-bands([0014][0024]); and sending a notification from the first radio station relating to the intended data transmission to the second radio station([0014][0024]), the notification being sent only on one or more sub-bands selected from the group consisting of the one or more first sub-bands and the one or more second sub-bands([0014][0024]); receiving a notification at the second radio station from the first radio station relating to the intended data transmission from the first radio station to the second radio station([0020][0024][0055] exchanging control messages between two stations); and

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after receiving the notification, sending an acknowledgement from the second radio station to the first radio station to acknowledge the intended data transmission([0015][0017][0021]), the acknowledgement being sent only on one or more sub-bands selected from the group consisting of one or more first sub-bands and one or more second sub-bands([0015][0017][0021][0024]).

Terry discloses the radio stations use sub-bands to transmit but fails to disclose radio stations are assigned to operate on certain channels. Franci teaches radio stations are assigned sub-bands (Fig. 3 and [0014][0017]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the invention of Terry, to assign each station channels that the station is allowed to transmit data, as taught by Franci, thus allowing a more organized and efficient way of allocating channels.

Regarding claim 33 and 35, combination of Terry and Franci discloses radio stations exchanging network messages on assigned sub-channels and information of assigned sub-channel is stored in memories.

Regarding claim 37, Terry discloses a computer readable storage medium containing a computer program to control a computer to perform a process for a first radio station in an ad- hoc mode of a radio communication system, the process comprising: selecting one or more sub-bands which will be used for sending([0014][0024]), to a second radio station, a notification of an intended data transmission from the first radio station to the second radio station ([0014][0020][0024][0055]), said selection being made from one or more first sub-bands

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which have been used by the first radio station for communicating and/or from one or more second sub-bands which have been used by the second radio station for communicating([0014][0024]), said sub-bands belonging to a frequency band which is divided into a plurality of sub-bands([0014][0024]).

Terry discloses the radio stations use sub-bands to transmit but fails to disclose radio stations are assigned to operate on certain channels. Franci teaches radio stations are assigned sub-bands (Fig. 3 and [0014][0017]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the invention of Terry, to assign each station channels that the station is allowed to transmit data, as taught by Franci, thus allowing a more organized and efficient way of allocating channels.

Regarding claims 20-24, 26-28, 32, 34 36, combination of Terry and Franci discloses the station detecting and determining the capacity/ occupancy of the sub-channels and transmit data including messages such as CTS and acknowledgement based on the detected the capacities of sub-channels.

Regarding claim 30, Terry discloses the method as claimed in Claim 29, wherein the data transmission is performed on one or more sub-bands selected from the group consisting of: the sub-band or sub-bands used to send the notification ([0014][0020][0022]), and the sub-band or sub-bands used to send the acknowledgment ([0015][0017][0021]).

Regarding claim 31, Terry discloses the method as claimed in Claim 20, wherein the second radio station receives the notification from the first radio station, after

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receiving the notification, the second radio station sends an acknowledgement to the first radio station to acknowledge the intended data transmission, the acknowledgement being sent only on one or more sub-bands selected from the group consisting of one or more first sub-bands and one or more second sub-bands([0014][0015][0017][0021][0024]).

Regarding claim 38, Terry discloses a computer readable storage medium containing a computer program to control a computer to perform a process for a second radio station in an ad-hoc mode of a radio communication system, the process comprising: selecting one or more sub-bands which will be used for sending([0014][0024]), to a first radio station, an acknowledgement of an intended data transmission from the first radio station to the second radio station([0015][0017][0021]), the acknowledgment being sent from the second radio station to the first radio station([0015][0017][0021]), said selection being made from one or more first sub-bands which have been used by the first radio station for communicating and/or from one or more second sub-bands which have been used by the second radio station for communicating([0014][0024]), said sub-bands belonging to a frequency band which is divided into a plurality of sub-bands ([0014] [0024]).

Terry discloses the radio stations use sub-bands to transmit but fails to disclose radio stations are assigned to operate on certain channels. Francl teaches radio stations are assigned sub-bands (Fig. 3 and [0014][0017]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the invention of Terry, to assign each

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station channels that the station is allowed to transmit data, as taught by Francl, thus allowing a more organized and efficient way of allocating channels.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATHY WANG-HURST whose telephone number is (571) 270-5371. The examiner can normally be reached on Monday-Thursday, 7:30am-5pm, alternate Fridays, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on (571) 272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KATHY WANG-HURST/
Examiner, Art Unit 2617

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/NICK CORSARO/

Supervisory Patent Examiner, Art Unit 2617